

TABLE 4.—Mean altitudes and temperatures of significant points identifiable as tropopauses during November 1939, classified according to the potential temperatures (10-degree intervals between 290° and 409° A.) with which they are identified. (Based on radiosonde observations)—Continued

Potential temperatures, °A.	San Antonio, Tex.			Sault Ste. Marie, Mich.			Spokane, Wash.		
	Number of cases	Mean altitude (km.) m. s. l.	Mean temperature	Number of cases	Mean altitude (km.) m. s. l.	Mean temperature	Number of cases	Mean altitude (km.) m. s. l.	Mean temperature
290-299			°C.	4	6.6	-43.8	1	6.7	-42.0
300-309				11	8.3	-51.2	1	7.8	-46.0
310-319				22	10.0	-58.9	14	9.4	-51.4
320-329	13	9.9	-46.5	16	10.9	-62.9	29	10.7	-57.6
330-339	21	11.3	-53.9	5	11.9	-64.0	13	11.7	-62.5
340-349	17	12.5	-60.1				5	12.5	-63.0
350-359	15	13.5	-63.7				3	13.2	-62.0
360-369	6	14.6	-68.2				2	13.8	-65.0
370-379	7	15.2	-68.3				2	13.6	-58.5
380-389	7	15.9	-69.4	1	13.6	-56.0	1	15.1	-63.0
390-399	5	16.5	-70.6	1	15.6	-67.0	1	15.4	-62.0
400-409	2	16.6	-66.0						
Weighted Means		12.9	-59.9		10.0	-68.1		11.2	-67.8
Mean potential temperature (weighted)		351.8			318.1			330.7	

RIVERS AND FLOODS

[River and Flood Division, MERRILL BERNARD in charge]

By BENNETT SWENSON

Drought conditions continued during November 1939, over most of the country and record low stages for the month were established at a number of stations. No floods were reported.

WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, I. R. TANNEHILL in charge]

NORTH ATLANTIC OCEAN, NOVEMBER 1939

By H. C. HUNTER

Atmospheric pressure.—Pressure averaged higher than normal over the west-central, south-central, and south-eastern portions, particularly the southeastern. It was lower than normal over the extreme northwestern area. From the parallel of 40°, north latitude, southward the pressure almost everywhere averaged higher during the second half of the month than it had during the first half.

The extremes of pressure noted in available vessel reports are 1,035.6 and 965.1 millibars (30.58 and 28.50 inches). The high mark was noted on the American steamship *Narbo*, during the forenoon of the 23d, near 46° N., 32½° W. Table 1 indicates a slightly higher reading on shore at Horta, occurring on the 24th. The low mark was noted on the American steamship *Lafayette*, at 6 p. m. of the 5th, near 55° N., 10° W.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, November 1939

Station	Average pressure	Departure	Highest	Date	Lowest	Date
	Millibars	Millibars	Millibars		Millibars	
Julianehaab, Greenland ¹	995.9	-5.1	1,016	14	967	4
Lisbon, Portugal ²	1,023.8	+6.5	1,034	16, 17	1,010	4
Horta, Azores	1,023.5	+3.2	1,036	24	1,010	6
Belle Isle, Newfoundland ¹	1,007.5	-6	1,033	22	983	7
Halifax, Nova Scotia	1,016.2	+1.9	1,032	4	999	1, 17
Nantucket	1,019.3	+1.7	1,034	4	996	1
Hatteras	1,021.7	+3.1	1,031	10	1,007	20
Turks Island	1,013.6	-2.0	1,019	16	1,006	4
Key West	1,017.6	+1.0	1,024	27	1,012	19
New Orleans	1,022.7	+3.4	1,034	27	1,012	18

¹ For 26 days.

² For 25 days.

NOTE.—All data based on a. m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

Cyclones and gales.—The North Atlantic seems to have been about as stormy as in an average November, but the first half was stormier than the second half, and the final 5 days appear to have been nearly free from important storms.

Two instances of winds of hurricane force were reported, the first by the Danish steamship *Nevada*, on the 12th, near 51° N., 36° W., and the second by the American steamship *Lafayette*, on the 15th, approximately at 40° N., 38° W. Winds almost as intense, namely, of force 11, were noted by three vessels during the first week of the month, two of these being over the eastern part of the ocean, while the third was over waters to southward of Newfoundland, in connection with the disturbance of tropical origin which is mentioned elsewhere in this issue. A fourth instance of force 11 wind was noted, not quite a week before the month ended, in the vicinity of Sable Island.

Tropical disturbance.—Elsewhere in this REVIEW appears an account of the disturbance which started within the Tropics, late in October, and advanced slowly at first, crossing eastern Cuba on November 4, then moved swiftly northeastward till at last the morning of November 8, when it was central to the eastward of Labrador.

Fog.—Remarkably few reports of fog have been received. No portion of the North Atlantic is indicated to have had fog on 4 or more days, but two 5° squares are known to have had some on 3 days each. The occurrences for one of these, at the southern tip of the Grand Banks, were on widely scattered dates, but all the dates were within the period 11th to 16th in the case of the other square, which was in the northwestern Gulf of Mexico, 25° to 30° N., 90° to 95° W.

No fog whatever was reported near the coast of North America between Nova Scotia and Cape Hatteras, where there usually is a little fog during November. The region of the Grand Banks seems to have had less than half the normal amount of November fog.